

CLAIMS

What is claimed is:

- 1 1. A cylindrical wear resistant band for providing a wear protection
2 surface over an inside surface of a cylindrical member in a rock crusher, the
3 cylindrical wear resistant band comprising:
4 a cast piece including a plurality of curvilinear segments, the
5 curvilinear segments being separated from each other by a portion of reduced
6 thickness, whereby the portion of reduced thickness can be cut through to separate
7 the curvilinear segments after installation on the inside surface of the cylindrical
8 member in the rock crusher.
- 1 2. The cylindrical wear resistant band of claim 1, wherein the
2 curvilinear segments are formed of a ceramic material.
- 1 3. The cylindrical wear resistant band of claim 1, wherein the
2 curvilinear segments are formed of materials containing iron.
- 1 4. The cylindrical wear resistant band of claim 2, wherein the cast
2 piece forms an arc of 360 degrees.
- 1 5. The cylindrical wear resistant band of claim 1, wherein the cast
2 piece forms an arc of at least 180 degrees.
- 1 6. The cylindrical wear resistant band of claim 1 wherein the cast
2 piece forms an arc of at least 90 degrees.

1 7. The cylindrical wear resistant band of claim 1, wherein the
2 cylindrical member is configured as a concave for a gyratory crusher, and the cast
3 piece includes at least three curvilinear segments.

1 8. The cylindrical wear resistant band of claim 1, wherein the
2 portion of reduced thickness is a groove having a depth of less than an average
3 thickness from an inside surface of the cast piece to an outside surface of the cast
4 piece.

1 9. In a rock crusher including a wear protection arrangement for a
2 surface to protect the surface from wear, the surface supporting a crushing operation
3 of the rock crusher, the wear protection arrangement comprising:
4 a plurality of curvilinear segments connected by a portion of reduced
5 thickness.

1 10. The wear protection arrangement of claim 9, wherein the
2 segments are formed of a metal material.

1 11. The wear protection arrangement of claim 9, wherein the
2 portions of reduced thickness are vertical with respect to the rock crusher.

1 12. The wear protection arrangement of claim 9, wherein the
2 curvilinear segments are comprised of at least three segments and two of the
3 segments are connected by the portion of reduced thickness and a third of the

Attorney Docket No. 18306/169

4 segments is connected to one of the two segments by another portion of reduced
5 thickness.

1 13. A method of repairing or manufacturing a rock crusher having a
2 shell, the shell being exposed to wear when the rock crusher is operational, the
3 method comprising step of:

4 attaching a one piece wear band including segments separated by a
5 portion of reduced thickness to the shell.

1 14. The method of claim 13, further comprising the step of:
2 cutting the wear band at the portion of reduced thickness.

1 15. The method of claim 14, wherein the cutting step includes
2 mechanically cutting or cutting with heat.

1 16. A concave for a gyratory crusher, the gyratory crusher including
2 a shell and a spider, the shell having a concave surface, the shell and the spider
3 defining a recess, the concave comprising:

4 a top end having a flange, the flange being configured to be received
5 in the recess.

1 17. The concave of claim 16, further comprising:
2 a lip extending above the flange.

Attorney Docket No. 18306/169

1 18. The concave of claim 17, wherein the lip has an inside surface
2 continuous with an inside surface of the concave.

1 19. The concave of claim 16, wherein the flange includes at least one
2 aperture.

1 20. The concave of claim 16, wherein the concave is an annular
2 ring.

1 21. A gyratory crusher, comprising:
2 a shell;
3 a spider disposed over the shell, the shell and the spider defining a
4 recess; and
5 a concave covering at least a portion of the shell, the concave
6 including a top end having a flange, the flange being configured to be received in
7 the recess.

1 22. The gyratory crusher of claim 21, further comprising:
2 a lip extending above the flange.

1 23. A method of repairing or assembling a gyratory rock crusher
2 including a spider and a shell the method comprising:
3 placing a concave element on a rim of the shell, the concave element
4 having a flange and a lip, the flange resting on the rim of the shell; and

Attorney Docket No. 18306/169

5 disposing the spider over the shell, thereby capturing the flange
6 between the spider and the rim of the shell.

1 24. The method of claim 23, wherein a gap is defined by the flange
2 and spider, further comprising:
3 filling the gap with backing material.

1 25. The method of claim 23, wherein the flange includes an aperture
2 and further comprising:
3 pouring backing material through the aperture.

1 26. The method of claim 25, wherein the backing material is poured
2 after the disposing step.

1 27. A cylindrical wear resistant band for providing a wear protection
2 surface over an inside surface of a cylindrical member in a rock crusher, the
3 cylindrical wear resistant band comprising:

4 a cast piece including a plurality of curvilinear segments, the
5 curvilinear segments capable of being separated from each other, whereby the band
6 can be cut to separate the curvilinear segments after installation on the inside surface
7 of the cylindrical member in the rock crusher.

1 28. The cylindrical wear resistant band of claim 27, further
2 comprising:
3 portions of reduced thickness separating the curvilinear segments.